

Orbital Liquid Oxygen Pump, Phase I

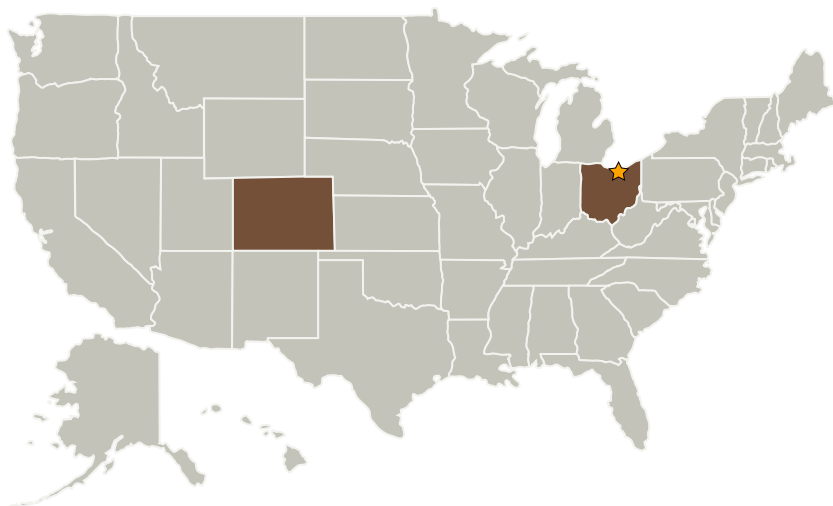
Completed Technology Project (2004 - 2004)



Project Introduction

This proposed work will develop a pump, which is based on two novel and unique design features. The first feature is a lobed pumping mechanism which operates with orbital motion. The second feature is the novel manner in which the orbital motion is generated. This pump has monolithic construction, is intrinsically sealed, and mechanically balanced. Power is provided to the pumping mechanism by electromagnetic drives, which are incorporated into the pump mechanism forming a compact, integrated unit. The unique features and simplicity of this design promises to provide a pump, which is compact, has low mass, and has quiet, safe, and reliable operation. This pump will be ideal for the long-term, space-based applications. Its development will focus on cryogenic fluids pumping including liquid oxygen.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Fluid Flow Technologies, L.L.C.	Supporting Organization	Industry	Evergreen, Colorado



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Colorado

Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Greg Glatzmaier

Technology Areas

Primary:

- TX14 Thermal Management Systems
 - └ TX14.1 Cryogenic Systems
 - └ TX14.1.1 In-space Propellant Storage & Utilization